CATCH ESTIMATION GUIDELINES

Accurate weights are extremely important. It will be possible to obtain actual weights in most situations. In rare cases, *i.e.* extremely large catches, rough weather, etc., it may be necessary to estimate the catch or a portion of the catch.

- Dressed vs. Round weights: Get round weights unless they are landing parts of a particular species, for example: monkfish livers, monkfish tails, skate wings, shark fins.
- Kept vs. Discarded catch: The following techniques can be used to estimate weights for both the kept and discarded portions of the catch. However, usually weight estimation will only be necessary for a kept species. If you are recording discards, ask the crew to throw the discards aside in totes or baskets for you to weigh at the end of the haul.
- Remember to subtract the weight of the basket or tote, *i.e.* the subsampling unit, from all weight calculations.
- Obtain a catch estimate from the captain if there is no other way of estimating a weight.

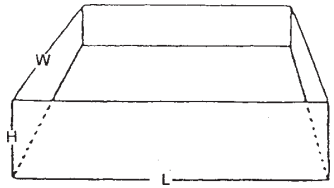
A Estimation Based on Basket or Tote Counts

1 The catch is separated into totes by species. For each species:
2 Get an average weight per tote by actually weighing some totes (A).
3 Count the total number of totes; make sure that all of the totes are filled to approximately the same level (B).
4 If the last tote is not full, weight it (C).
5 To calculate the total catch, multiply the number of totes by the average weight of a tote and add the remainder (A x B + C).

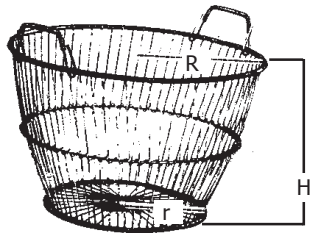
B Estimating Large Catches Using Volume and Density Measures

1 Calculate the volume of the fish bin or hold.
Rectangular bin/hold*: Volume A (V cubic feet) = height of fish (H feet) x width (W feet) x length (L feet)

2 Calculate the volume of a basket or tote (the subsampling unit).
Rectangular tote*: Volume B (V cubic feet) = length (L feet) x width (W feet) x height of fish (H feet)
Basket*: Volume B (V cubic feet) = pi (π) [top radius^2 (R^2 feet) + (top radius x bottom radius (Rr feet)) + bottom radius^2 (r^2 feet)] x height (H feet) / 3



$V = L \times W \times H$



$V = \pi \left[R^2 + Rr + r^2 \right] H / 3$

Figure 42. Mathematical formulas for calculating the volume of a fish tote (left) or basket (right).

3 Weigh tote(s) full of fish (weight of subsample in pounds). Calculate the average weight per tote.
Weight B (lbs) = weight of tote #1 (lbs) + weight of tote #2 (lbs) + weight of tote #3 (lbs) + etc... / number of totes weighed

4 Calculate the density of the fish in the subsample by dividing the weight of the subsample by the volume of the tote.
Density B (lbs/cubic foot) = Weight B (lbs) / Volume B (cubic feet)

5 Calculate the total catch weight by multiplying the volume of the bin by the density of the fish.
Total catch weight (lbs) = Volume A (cubic feet) x Density B (lbs/cubic feet)

6 Take a subsample of the catch and calculate the percent of catch for each species.
Percent of species a = weight of species a (lbs) / total weight of subsample (lbs)

7 Calculate the estimated total catch weight by species by multiplying the percent of catch by the total catch weight.
Weight of species a (lbs) = Percent of species a (%) x Total Catch Weight (lbs)

*examples of calculating volume for odd shaped containers can be found in the NEFSC Observer Program Training Manual